(BSP May 15, 2006)

Powder Coating of Galvanized Surfaces

As an alternative to applying the specified two-coat conventional paint system over the galvanized surfaces of *** $$1$$ *** to be painted, the Contractor may apply a powder coating system in accordance with the following requirements:

Submittals

The Contractor shall submit the following information to the Engineer for approval:

1. The name, location, and contact information (mail address, phone, and e-mail) for the firm performing the powder coating operation.

2. Quality assurance and quality control programs established and followed by the firm performing the powder coating operation.

3. Project specific powder coating plan, including identification of the powder coating materials used (and manufacturer), and specific cleaning, surface preparation, pre-heating, powder coating application, curing, shop and field coating repair, handling, and storage processes to be taken for the assemblies being coated for this project.

Galvanizing

Prior to the galvanizing operation, the Contractor shall identify to the galvanizer the specific assemblies and surfaces receiving the powder coating after galvanizing, to ensure that the galvanizing method used on these assemblies is compatible with subsequent application of a powder coating system. Specifically, such assemblies shall neither be water-quenched, nor receive a chromate conversion coating, as part of the galvanizing operation.

Galvanized Surface Cleaning and Preparation

Galvanized surfaces receiving the powder coating shall be cleaned and prepared for coating in accordance with ASTM D 6386, and the project specific powder coating plan as approved by the Engineer.

Assemblies conforming to the ASTM D 6386 definition for newly galvanized steel shall receive surface smoothing and surface cleaning in accordance with ASTM D 6386 Section 5, and surface preparation in accordance with ASTM D 6386 Section 5.4.1.

Assemblies conforming to the ASTM D 6386 definition for partially weathered galvanized steel shall be checked and prepared in accordance with ASTM D 6386 Section 6, before then receiving surface smoothing and surface cleaning in accordance with ASTM D 6386 Section 5, and surface preparation in accordance with ASTM D 6386 Section 5.4.1.

Assemblies conforming to the ASTM D 6386 definition for weathered galvanized steel shall be prepared in accordance with ASTM D 6386 Section 7.

Powder Coating Application and Curing

After surface preparation, the two component powder coating shall be applied in accordance with the powder coating manufacturer's recommendations, the project specific powder coating plan as approved by the Engineer, and as follows:

1. Pre-heat.

2. Apply the epoxy primer coat, followed by a partial cure.

3. Apply the polyester finish coat, followed by the finish cure.

Testing

The firm performing the powder coating operation shall conduct, or make arrangements for, QA/QC testing on all assemblies receiving powder coating for this project, in accordance with the powder coating firm's QA/QC program as documented in item 2 of the **Submittal** subsection of this Special Provision. At a minimum, the QA/QC testing shall test for the following requirements:

1. Visual inspection for the presence of coating holidays, and other unacceptable surface imperfections.

2. Coating thickness measurement in accordance with Section 6-07.3(5). The minimum thickness of the epoxy primer coating and polyester finish coating shall be 76 micrometers each.

3. Hardness testing in accordance with AAMA 2604 and ASTM D 3363.

4. Adhesion testing in accordance with ASTM D 4541 for 2,760 kPa minimum adhesion for both the epoxy primer coat alone and for the complete two component coating system.

The results of the QA/QC testing shall be documented in a QA/QC report, and submitted to the Engineer for approval.

The Engineer shall be provided notice and access to all assemblies at the powder coating facility for the purposes of Contracting Agency acceptance inspection, including notice and access to witness all hardness and adhesion testing performed by the firm conducting the QA/AC testing, in accordance with Section 1-05.6.

Assemblies not meeting the above requirements will be subject for rejection by the Engineer. Rejected assemblies shall be repaired or re-coated by the Contractor, at no additional expense to the Contracting Agency, in accordance with the project specific powder coating plan as approved by the Engineer until the assemblies satisfy the acceptance testing requirements.

Assemblies shall not be shipped from the powder coating firm's facility to the project site until the Contractor receives the Engineer's approval of the QA/QC Report and assembly inspection performed by the Engineer.

Coating Protection For Shipping, Storage, and Field Erection

After curing and acceptance, the Contractor shall individually wrap the coated assemblies with multiple layers of bubble wrap, or other protective wrapping materials specified in the project specific powder coating plan as approved by the Engineer.

During storage and shipping, each wrapped assembly shall be separated from other wrapped assemblies by expanded polystyrene spacers and other spacing materials specified in the project specific powder coating plan as approved by the Engineer.

After erection, all coating damage due to the Contractor’s shipping, storage, handling, and erection operations shall be repaired by the Contractor, at no additional expense to the Contracting Agency, in accordance with the project specific powder coating plan as approved by the Engineer.